# Tritium

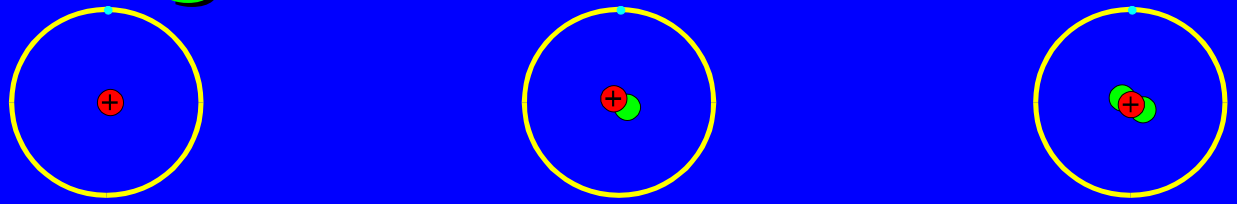
# $^{3}H$

# Tritium - $^{3}H$

# Tritium - $^{3}H$

- Heaviest isotope of hydrogen
- Gas under ordinary conditions
- Low energy beta emitter
- Half Life = 12.3 years

**Hydrogen** **Deuterium** **Tritium**



*Proton = 1*
*Neutron = 0*

*Proton = 1*
*Neutron = 1*

*Proton = 1*
*Neutron = 2*

# What is it used for?

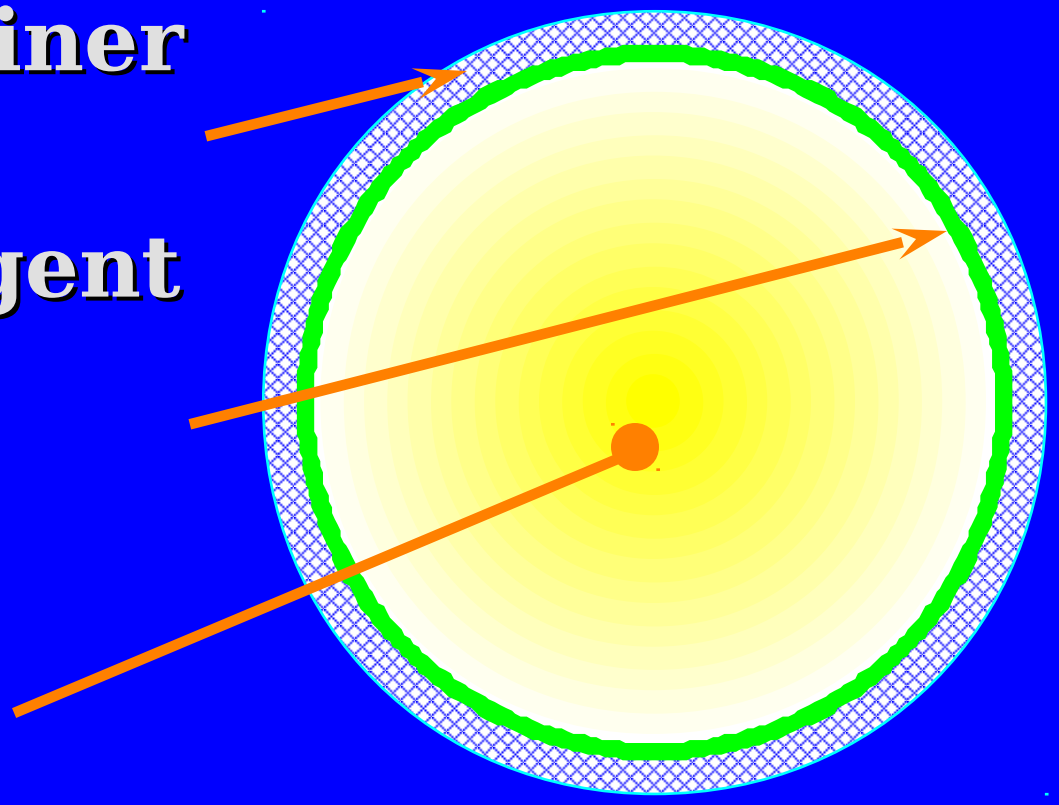
- Hydrological Studies
- Tracer for Biological Research
- Luminous Paints
- Activator in Phosphor Light Sources

# Tritium Light Source

**Pyrex Container**

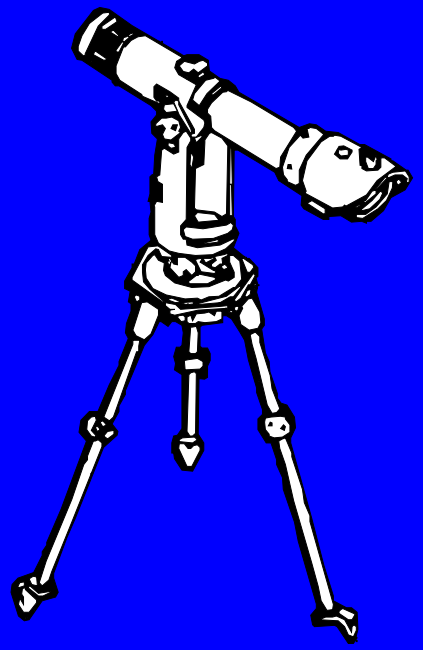
**Phosphor Agent**

**Tritium Gas**



# Tritium Hazards

- **Tritium gas poses little hazard**
  - **Dissipates Quickly into the Atmosphere**



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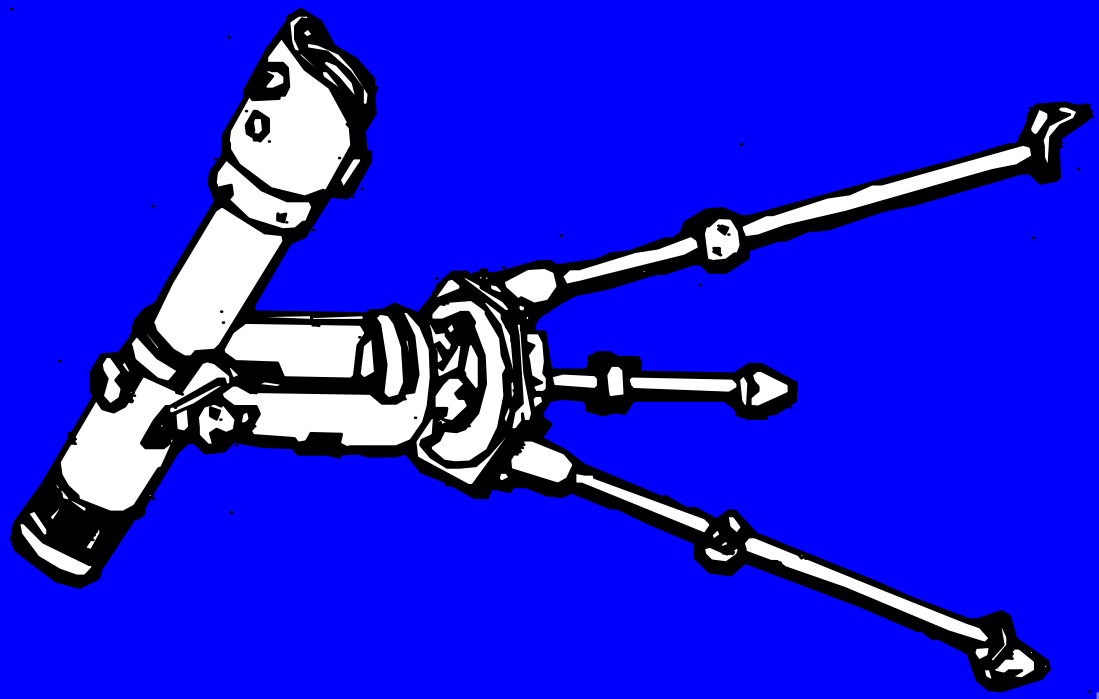

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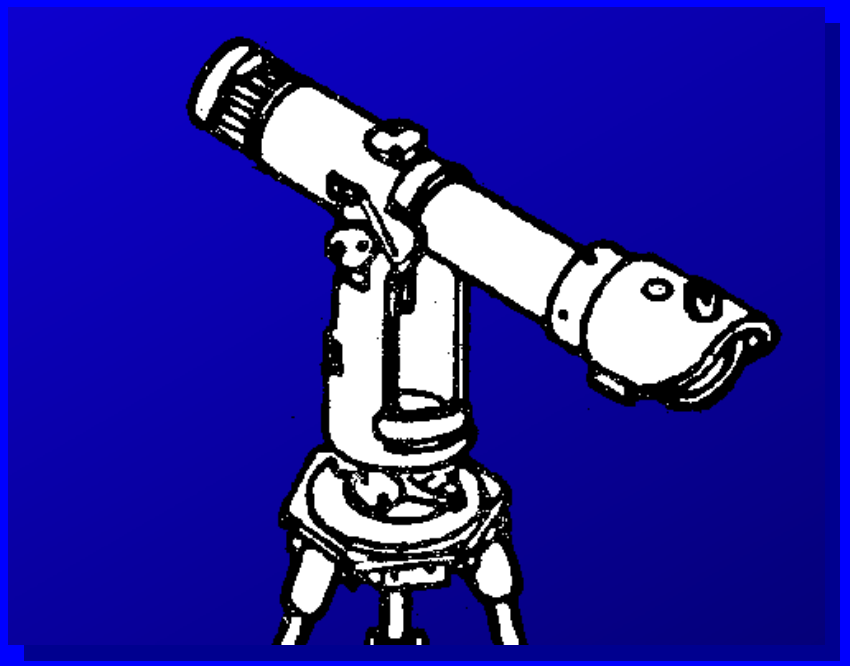
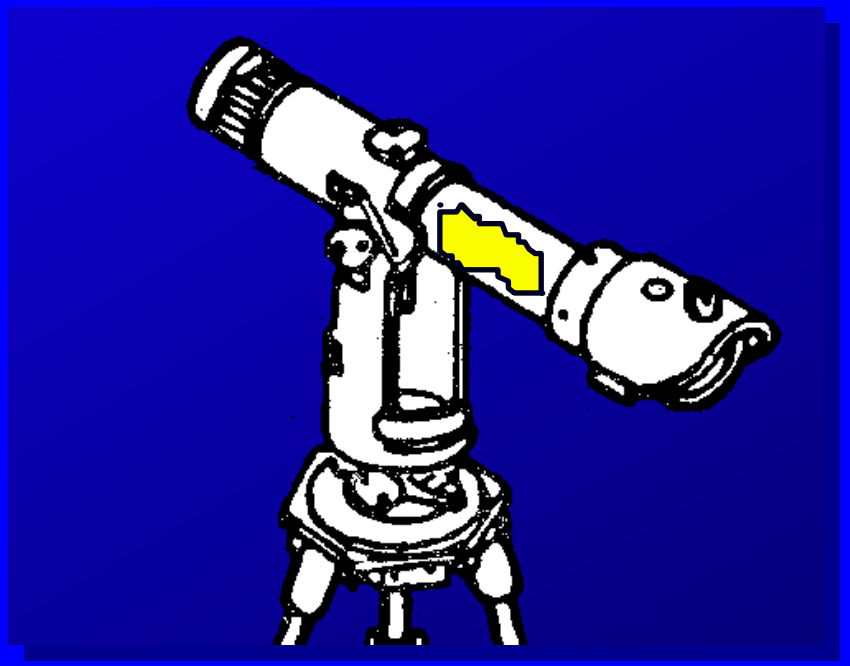


# Tritium Hazards

- Tritium gas poses little hazard
  - Dissipates Quickly into the Atmosphere
- **Tritium Oxide**
  - Readily absorbed by the body
  - Chemically Identical to water
  - Plates into other material



# Illumination Test

1. **Place the device in a dark place**

   **Ensures that phosphor agent is not activated by an outside light source.**

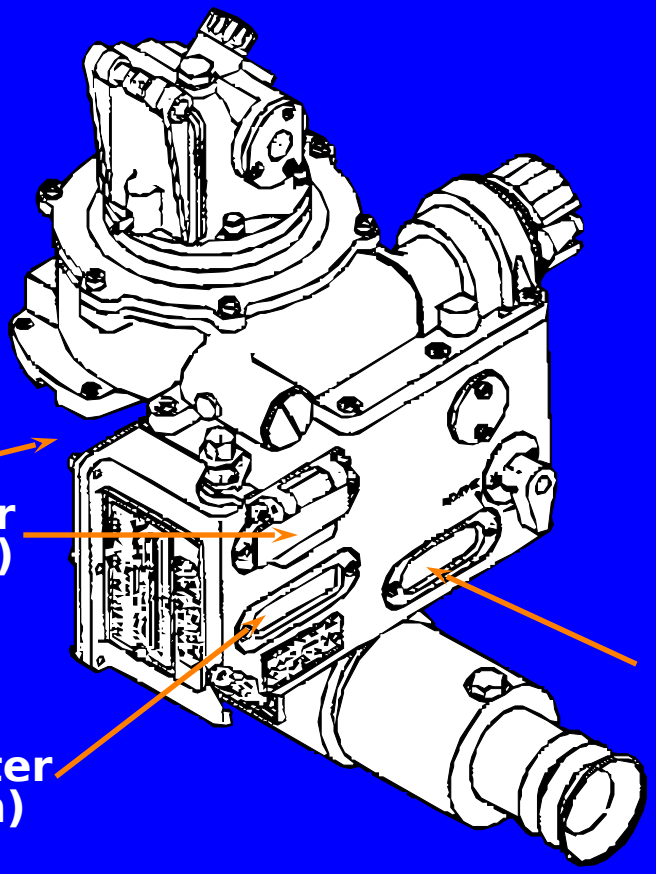
2. **View to ensure proper illumination.**

   **Allow eyes to become accustomed to the dark.**

3. **If no illumination:**

**ASSUME THE SOURCE IS BROKEN!**

# Illumination Test



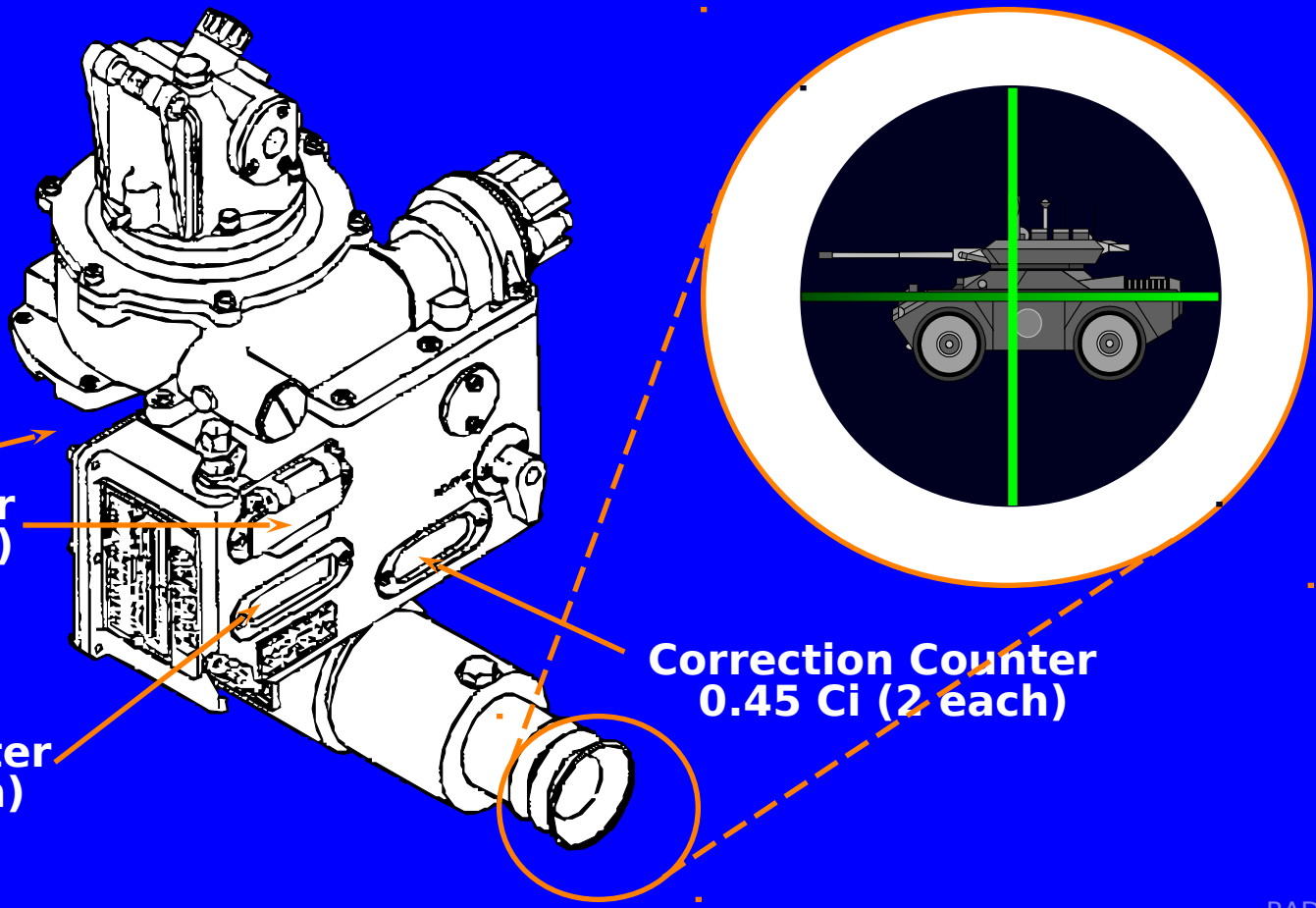
Reticle Lamps
0.6 Ci (4 each)

Azimuth Counter
0.45 Ci (2 each)

Deflection Counter
0.45 Ci (2 each)

Correction Counter
0.45 Ci (2 each)

# Illumination Test



# Handling Damaged Devices

- **Vacate the area**
- **Contact the local RPO or Safety Officer**

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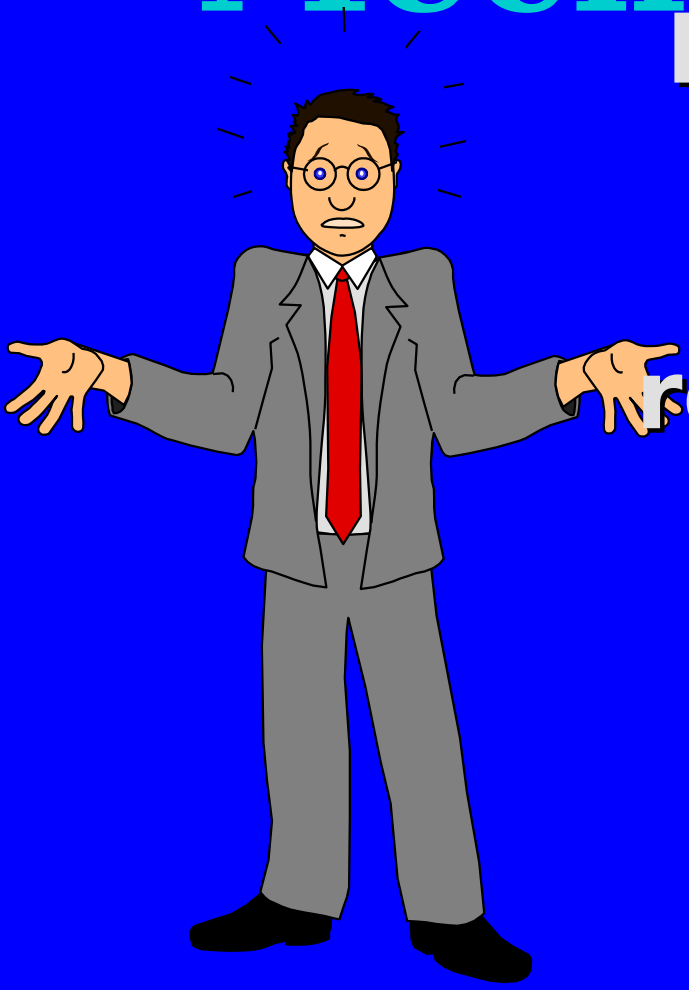
**Vacate the area**

**Contact the local RPO or Safety Officer**

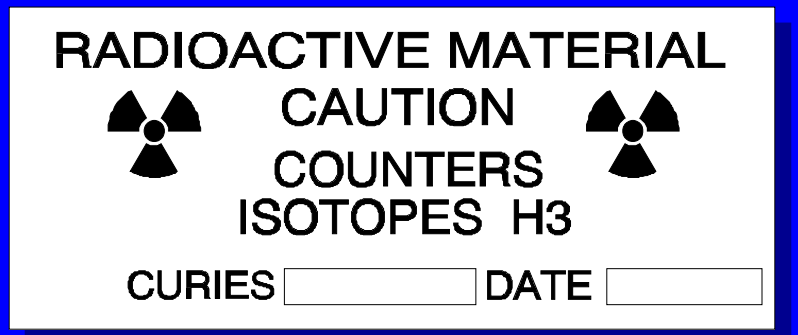
- **Wash with non-abrasive soap and warm wa**
- **Wear latex or rubber gloves**
- **Double bag the device**
- **Label container as "BROKEN TRITIUM DEVICE - DO NOT OPEN"**
- **Report for bioassay**
- **Wipe test the area**
- **Restrict access to area until results from wipe test are received**

# “Shade Tree Mechanic”



**Personnel performing maintenance without proper tools or reference material in a hap-hazard manner with lax mental attitude while being shielded from solar radiation by large**

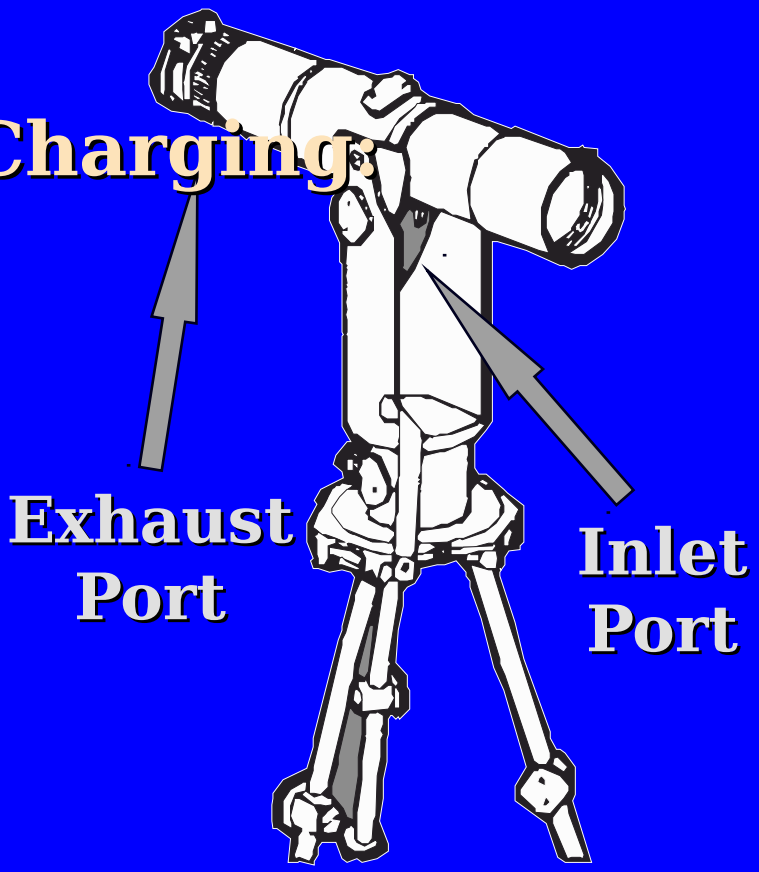
# Typical Warning Plates



# M1A1 Infinity Collimator

## When Purging and Charging:

- Follow instructions in TM 750-116
- Use ONLY the approved Fire Control Instrument Purging Kit
  - SC 4931-95-CL-J54



# M1A1 Infinity Collimator

- Pressure Relief Valve
  - PN 9356010
  - NSN 4820-01-343-0401
  - GS level modification


- John Johnson
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